

We Claim:

1. A lubrication device for lubricating lubrication sites on a belt moving along a lubrication site path of movement, comprising:

a lubricating apparatus operable to move back and forth parallel to the lubrication site path of movement between a starting position and a run path ending position, said lubricating apparatus including:

a catch operable to pivot between a resting position, whereat said catch is not engaged with the belt, and a catch position, whereat said catch engages the belt such that the belt moves said lubricating apparatus parallel to the lubrication site path of movement at a speed of the belt from the starting position to the run path ending position; and

a lubricating head operable to supply lubricant to a lubrication site on the belt while said catch is in the catch position and while said lubrication apparatus is moving parallel to the lubrication site path of movement from the starting position to the run path ending position; and

a track for supporting the belt, wherein at least one of said lubricating apparatus and said track is operable to move transverse to the lubrication site path of movement such that the lubrication site and said lubricating head of said lubrication apparatus approach each other.

2. The lubrication device of claim 1, wherein said lubricating apparatus is further operable to move parallel to the lubrication site path of movement from the starting position to the run path ending position at a boosting speed before or simultaneously as said catch pivots into the catch position so as to engage the belt, said boosting speed being greater than zero and less than the speed of the belt, the boosting speed being no less than 0.4 m/sec less than the speed of the belt.

3. The lubrication device of claim 1, wherein said lubricating apparatus is further operable to move parallel to the lubrication site path of movement from the starting position to the run path ending position at a boosting speed before or simultaneously as said catch pivots into the catch position so as to engage the belt, the boosting speed being no greater than 0.4



m/sec.

4. The lubrication device of claim 3, further comprising an acceleration cylinder for moving said lubricating apparatus at the boosting speed, said acceleration cylinder being shaped and designed to be pressure-free when said lubricating head begins the supply of the lubricant.

5. The lubrication device of claim 4, wherein said acceleration cylinder is operable to move pressure-free into a starting position while said lubricating apparatus moves parallel to the lubrication site path of movement from the run path ending position back to the starting position.

6. The lubrication device of claim 3, further comprising a return cylinder including a one-way restrictor valve for setting a return speed of said lubricating apparatus parallel to the lubrication site path of movement from the run path ending position back to the starting position.

7. The lubrication device of claim 3, further comprising a return cylinder operable to apply a counter-pressure of 0.5 bar to said lubricating apparatus while said lubricating apparatus is moving parallel to the lubrication site path of movement from the starting position toward the run path ending position at the boosting speed, and operable to apply a return pressure of 6.0 bar to said lubricating apparatus while said lubricating apparatus is moving parallel to the lubrication site path of movement from the run path ending position back to the starting position.

8. The lubrication device of claim 1, further comprising an acceleration device for moving said lubricating apparatus parallel to the lubrication site path of movement from the starting position toward the run path ending position at a boosting speed, and a reset device for applying a force against said lubricating apparatus in a direction parallel to the lubrication site path of movement in a direction from the run path ending position toward the starting position.

9. The lubrication device of claim 8, wherein said acceleration device comprises one of an acceleration cylinder and a setting motor, and wherein said reset device comprises a return cylinder.



10. The lubrication device of claim 1, further comprising a one-way restrictor valve for setting a boosting speed of said lubricating apparatus moving parallel to the lubrication site path of movement from the starting position toward the run path ending position.

11. The lubrication device of claim 1, wherein said lubricating apparatus is operable to move in a direction transverse to the lubrication site path of movement such that said lubricating head of said lubrication apparatus approaches the lubrication site.

12. The lubrication device of claim 1, wherein said track is operable to be moved by said catch of said lubricating apparatus in a direction transverse to the lubrication site path of movement such that the lubrication site approaches said lubricating head of said lubrication apparatus.

13. The lubrication device of claim 1, wherein said catch includes a catch arm operable to engage the belt from above or below the belt.

14. The lubrication device of claim 13, wherein said catch arm has a fork-shaped outer end for engaging the belt.

15. The lubrication device of claim 13, wherein said catch arm is operable to pivot outward toward the lubrication site path of movement.

16. The lubrication device of claim 1, further comprising two sensors spaced apart parallel to the lubrication site path of movement of the belt, said two sensors being operable to detect two lubrication sites spaced apart along the longitudinal axis of the belt, wherein said lubricating apparatus includes at least two lubricating heads spaced apart parallel to the lubrication site path of movement of the belt for supplying lubricant to the two lubrication sites.

17. The lubrication device of claim 16, wherein said two sensors are spaced apart a



separation distance equal to a separation distance between the two lubrication sites of the belt.

18. The lubrication device of claim 16, wherein said two sensors are adjustably mounted such that a separation distance between said two sensors can be adjusted.

19. The lubrication device of claim 16, wherein said lubricating apparatus includes two pairs of opposing lubricating heads spaced apart parallel to the lubrication site path of movement of the belt for supplying lubricant to the two lubrication sites, each of said pairs of opposing lubricating heads being operable in tandem.

20. The lubrication device of claim 16, wherein said lubricating apparatus further includes a carriage and two pairs of opposing lubricating heads mounted on said carriage so as to be spaced apart parallel to the lubrication site path of movement of the belt for supplying lubricant to the two lubrication sites.

21. The lubrication device of claim 20, wherein said carriage supports said catch.

22. The lubrication device of claim 16, wherein said lubricating apparatus includes two pairs of opposing lubricating heads spaced apart parallel to the lubrication site path of movement of the belt for supplying lubricant to the two lubrication sites, said pairs of opposing lubricating head being arranged mirror-symmetrically with respect to the belt.

23. The lubrication device of claim 1, wherein said lubricating apparatus includes at least two lubricating heads opposing each other on opposite sides of the belt, said lubricating heads being operable to synchronously move in a direction transverse to the lubrication site path of movement such that said lubricating heads approach the lubrication site.